

## ปัจจัยที่มีผลต่อการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรม ในเขตนิคมอุตสาหกรรม อมตะนคร จังหวัดชลบุรี

Factors Influencing the Learning Organization of Industrial Factories

in Amata Nakorn Industrial Estate, Chonburi Province. Thailand.

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### บทคัดย่อ

การศึกษาเรื่อง ปัจจัยที่มีผลต่อการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรมในเขตนิคมอุตสาหกรรม อมตะนคร จังหวัดชลบุรี มีวัตถุประสงค์เพื่อ 1) ศึกษาระดับการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรมในเขตนิคมอุตสาหกรรมอมตะนคร จังหวัดชลบุรี 2) ศึกษาปัจจัยที่มีความสัมพันธ์ต่อการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรมในเขตนิคมอุตสาหกรรมอมตะนคร จังหวัดชลบุรี 3) ศึกษาปัจจัยที่ทำนายการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรมในเขตนิคมอุตสาหกรรมอมตะนคร จังหวัดชลบุรี โดยกลุ่มตัวอย่างที่ใช้ในการศึกษาคั้งนี้คือผู้จัดการฝ่ายบุคคลของแต่ละโรงงานในนิคมอุตสาหกรรมอมตะนครจังหวัดชลบุรี จำนวนกลุ่มตัวอย่าง 190 คน ใช้วิธีการสุ่มตัวอย่างอย่างง่าย เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลคือ แบบสอบถามส่วนการวิเคราะห์ข้อมูลนั้นใช้สถิติค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สถิติ Pearson Product Moment Correlation และสร้างสมการถดถอยเพื่อพยากรณ์ตัวแปรตามโดยการวิเคราะห์

การถดถอยพหุคูณแบบขั้นตอน โดยกำหนดระดับนัยสำคัญทางสถิติที่ระดับ .01 ผลการศึกษาระดับการเป็นองค์กรแห่งการเรียนรู้ของโรงงานอุตสาหกรรมในเขตนิคมอุตสาหกรรมอมตะนคร จังหวัดชลบุรี พบว่ากลุ่มตัวอย่างมีความคิดเห็นเกี่ยวกับระดับการเป็นองค์กรแห่งการเรียนรู้ในภาพรวมอยู่ในระดับมาก เมื่อศึกษาความสัมพันธ์พบว่าบรรยากาศในการทำงานและการจัดการความรู้มีความสัมพันธ์กับการเป็นองค์กรแห่งการเรียนรู้ในระดับมีความสัมพันธ์สูง ส่วนภาวะผู้นำ วัฒนธรรมองค์กร เทคโนโลยีที่สนับสนุนการเรียนรู้ สภาพแวดล้อมที่สนับสนุนการเรียนรู้ เทคนิคและเครื่องมือที่สนับสนุนการเรียนรู้มีความสัมพันธ์กับการเป็นองค์กรแห่งการเรียนรู้ในระดับค่อนข้างสูงอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 ส่วนปัจจัยที่ทำนายการเป็นองค์กรแห่งการเรียนรู้คือการจัดการความรู้ (x7), วัฒนธรรมองค์กร (x2), เทคโนโลยีที่สนับสนุนการเรียนรู้ (x4), สภาพแวดล้อมที่สนับสนุนการเรียนรู้ (x5) และภาวะผู้นำ (x1) โดยมีค่าสัมประสิทธิ์สหสัมพันธ์พหุคูณเท่ากับ 0.870 มีอำนาจการทำนายร้อยละ 75.80 อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และ

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เขียนสมการพยากรณ์ในรูปแบบ ค่ะแนบดิบได้ดังนี้  

$$Y = 0.879 + 0.708 x_7 + 0.279 x_2 + 0.173 x_4 + 0.166 x_5 + 0.134 x_1.$$

**คำสำคัญ:** องค์การแห่งการเรียนรู้/  
ปัจจัยที่มีอิทธิพล

### Abstract

The purposes of this study “Factors Influencing the Learning Organization of Industrial Factories in Amata Nakorn Industrial Estate, Chonburi Province. Thailand” were to; 1) study the level of engagement toward learning organization in sample factories 2) study factors related to learning organization in the sample factories 3) study factors which forecast the learning organization of the these sample factories. The subjects used for this study were 190 personnel managers from the sample factories. A simple random sampling was applied to get the representatives and a questionnaire was used as the research instrument. The data was analyzed by percentage, mean and standard deviation. Pearson Product Moment Correlation and Multiple Regression were applied to predict the dependent variables. The significant difference was set at 0.01. The results revealed that the sample group reflected a high level of engagement toward a learning organization overall. Each aspect: personal mastery, team learning, systematic thinking, mental model, and shared vision were all rated at a high. The research found that the working environment and knowledge manage-

ment had a strong relationship with the learning organization. The leadership styles, organizational culture, supportive learning technology; supportive learning environment had a rather high relationship with the learning organization with a statistically significant difference at 0.01. The research revealed that predictive variables to forecast the learning organization were as follows: knowledge management (x7), organizational culture (x2), supportive learning technology (x4), supportive learning environment (x5) and leadership style (x1) had multiple correlations being 0.870 and the prediction ability was at 75.80 % with a significant difference at 0.01. The forecast equation was presented with the raw scores as follows:  $Y = 0.879 + 0.708 x_7 + 0.279 x_2 + 0.173 x_4 + 0.166 x_5 + 0.134 x_1.$

**Keywords:** Learning organization/  
Factors influencing

### INTRODUCTION

Working in the industrial sector is an interesting way of life. The number of industrial business increases everyday and the needs for more workers follow. However, the global situation is changing so rapidly and in many ways such as knowledge, technology and consumer requirements. As a result, the organizations have to develop their personnel to be ready to work in changing situations. Learning is crucial because the only the well adapted organization can be survival. The adjustment due to competition has changed the simple working life of workers to a more challenging ways of life

in order to cope with the following problems. First, globalization has brought about the idea of shared benefits, values and tastes. Groups of countries cooperate for commercial benefits and set new rules, and regulations to obstruct the usual trading practices. The world economic has created the level of a world organization and assumes that the globe is their markets. Every business activity will be joined to reinforce, to increase capability and to compete at the world level. Moreover, there is a transfer of production lines to other countries because of cheaper labors. As a result, there is a need for high quality manpower to develop structure and organization to become a world class organization. The second problem is technology since it has now become a part of the working process. The internet and the intranet systems have shortened the communication information process. Technology requires personnel or staff to become self-directed learning people and be ready to deal with technology in order to work with quality in the future. The third problem relates to limited world resources which needs good resource management approaches. The organization should pay much attention to develop knowledge for potential personnel so as to be ready to manage resources for the highest benefits and to be sustainable. The last problem is the expanding of production lines especially the continuing expansion of industrial business and it plays an important role in the national economy. Thus, there is a need for quality workers to develop the organization. (Verawut Makasiranon, 2006 p.19)

As earlier mentioned, it shows that every

industrial factory attempts to create quality and effectiveness of the organization in the overall picture. They believe that the heart of a learning organization depends on discipline and includes 5 characteristics. Senge describes the learning organization as “the place where persons try to expand their capabilities to create work needed in the future”. The discipline consists of personal mastery, mental model, shared vision, team learning, and systematic thinking .(Senge,1990 pp.139-246) Amata Nakorn Industrial estate is an industrial sector in the Eastern Region of Thailand located at Muang District and Pantong District. The estate has 15,000 Rai and 349 factories. (<http://www.ieat-go.th.22/12/2006>) The investment costs more than 50,000 million baht and there are 61,484 workers. Most of the factories operate on electrical machines, electrical equipments and electronic devices. Amata Nakorn Industrial Estate has a policy to encourage learning in all companies operating on its site, at the same time, the company would also wants help their personnel to be able to work effectively. According to the statement mentioned above the researcher would like to seek the answer about the level of engagement in the learning organization of the factories at the Amata Nakorn Industrial Estate. What factors are related to becoming a learning organization there. The results would benefit the factory administrators and personnel to develop their own learning organizations.

## THE RESEARCH OBJECTIVES

1. To study the level of learning organization at industrial factories in Amata Nakorn

Industrial Estate.

2. To study factors related to the learning organization of industrial factories in Amata Nakorn Industrial Estate.

3. To study factors which predict the learning organization of industrial factories at the Amata Nakorn Industrial Estate.

**CONCEPTUAL FRAMEWORK**

The conceptual framework consisted of these main ideas such as leadership style, organization culture, working environment, supportive learning technology, supportive learning environment, supportive learning technique and tools and knowledge management. These ideas are related to learning organization in the industrial factories in Amata Nakorn Industrial Estate Chonburi, Thailand. For the learning organization theory come from Peter Senge, 1990 consisted of Personal Mastery, Mental Model, Shared Vision, Team Learning and Systematic Thinking

**THE RESEARCH HYPOTHESIS**

The research hypothesis consisted of

the following statements:

1. Leadership style is related to the learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

2. Organization culture is related to the learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

3. Working environment is related to the learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

4. Supportive learning technology is related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

5. Supportive Learning Environment is related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

6. Supportive learning technique and tools are related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

7. Knowledge Management is related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.

**Independent Variable**

- Leadership Style
- Organization Culture
- Working Environment
- Supportive Learning Technology
- Supportive Learning Environment
- Supportive Learning Techniques and Tools
- Knowledge Management

**Dependent Variable**

- Learning organization (Peter Senge, 1990)
- Personal Mastery
- Mental Model
- Shared Vision
- Team Learning
- Systematic Thinking



## RESEARCH METHODOLOGY

### 1. Population and sample

This study consisted of 349 personnel managers from the factories at the Amata Nakorn Industrial Estate. The sample group was 190 personnel managers calculated by using Taro Yamane formular. A simple random sampling was applied to get the sample size. (Chaleamphol Srihong, 1999, p. 9)

### 2. Research Instrument

The researcher constructed a questionnaire to collect the data and the reliability of the questionnaire was .983, There were 3 parts in the questionnaire:

Part 1. It dealt with the basic information of the respondent such as sex, age, education level, and working experience. This part composed of 4 questions.

Part 2. This part concerned with the organization factors such as leadership style, organization culture, working environment, supportive learning technology, supportive learning environment, supportive learning techniques and tools, and knowledge management. There were 21 items in this part.

Part 3. The final part dealt with the level of learning organization of the industrial factories which consisted of five disciplines, personal mastery, mental model, shared vision, team learning, and systematic thinking. There were 25 items in this part.

## DATA COLLECTION PERIOD

The collection of data was performed from 1-30 November 2007 and the 130 copies of questionnaire were completely returned by 100 %.

## DATA ANALYSIS

The analysis of data was managed in the following manners.

1. To describe the general characteristics of the sample group, descriptive statistic, frequency and percentage were used.

2. To describe the organization factors, mean and standard deviation were applied.

3. To describe the level of leaning organization of the industrial factories, mean and standard deviation were used.

4. To test the hypothesis by analyzing the data to find the relationship between dependent and independent variables, Pearson Product Moment Correlation and Multiple regressions were used.

## RESEARCH RESULTS AND DISCUSSION

### **The level of learning organization of industrial factories at the Amata Nakorn Industrial Estate.**

In the overall picture, it was found that the sample group rated the level of learning organization at the high level. But in each aspect, the average mean score came out as follows personal mastery ( = 2.78, S.D. = 0.61), team learning(=2.76, S.D.=0.56), systematic thinking

(M = 2.70, S.D= 0.56), mental model (M = 2.68, S.D. = 0.50), and shared vision (M =2.62, S.D. = 0.60)

### **Factors related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.**

The research found that the working environment and knowledge management were highly related to the learning organization. However, leadership styles, organization culture, supportive learning technology, supportive learning environment, supportive learning techniques and tools were slightly less high related to learning organization with a statistical significant difference at 0.01

### **Factors which forecast learning organization of the industrial factories at the Amata Nakorn Industrial Estate.**

Through using Multiple Regression Equation, the research found that the following five factors could predict the learning organization: knowledge management (x7), organization culture (x2), supportive learning technology (x4), supportive learning environment (x5), and leadership style (x1) respectively. The prediction equation was shown as follows

$$Y = 0.879 + 0.708 x 7 + 0.279 x 2 + 0.173 x 4 + 0.166 x 5 + 0.134 x 1$$

The prediction power was at 75.80 with a significant difference at 0.01

### **The level of learning organization of industrial factories at the Amata Nakorn Industrial Estate**

Level of learning organization was rated at a high level across the board due to every industrial factory attempts to create quality and effectiveness of the organization in the overall picture. They believe that the heart of a learning organization depends on discipline along with other 5 characteristics. Senge describes the learning organization as “the place where persons try to expand their capabilities to create work needed in the future”. The discipline consists of personal mastery, mental model, shared vision, team learning and systematic thinking (Senge, 1990). The result was in accordance with Luechai Chanpoe (2003) and Boonthum Boranmul (2005). The first one studied with Learning Organization Model in the Catholic Vocational School of Thailand and the other studied the factors influencing learning organizations at a schools in the municipal of Khonkan , Khonkan province. They found that the learning organization were rated at a high level. Moreover, Poethiya Kumphew (2005) also found that the level of learning organization in schools in Nongkai Education Region was rated at a high level. The learning organization was rated at a high level and the researcher assumes that every factory needs to improve themselves to be the learning organization industrial factories in order to get ready for

competition and high quality product.

### **Factors related to learning organization of the industrial factories at the Amata Nakorn Industrial Estate.**

Linear relationship between leadership styles and learning organizations was found with a significant difference at 0.01 which was consistent with a study of Suphaluk Phuprasert (2005), the factor influencing learning organization in professional nurses in the public hospital in Bangkok, which found that there were relationship between leadership styles of the head nurses and the learning organization. Boonthum Boranmul (2005) also found that academic leadership style showed positive relationship in learning organization. In addition, Tuan Jawyang (2007) mentioned that leadership styles related to learning organization. The researcher believes that leadership style is an important characteristics for management influencing the employees to develop themselves and bring about changes in the organization.

Linear relationship between organization culture and learning organization was found with significant difference at 0.01 and the results also came out in the same direction studied by Poethiya Kumphew (2005) which was found that organization culture of school in Nongkai related to learning organization. Boonthum Boranmul (2005), found that there was relationship between the learning culture of school and

earning organizations. Moreover, Tuan Jawyang (2007) addressed that organization culture was related to learning organizations. The researcher suggests that organization culture is a framework for personnel in each organization, as a result, good learning organization needs good organization culture.

Linear relationship between the working environment and learning organization was found with statistical significant difference at 0.01. Several studies revealed the results at the same direction such as Kanokorn Yosphaibul and others (2004), Boonthum Boranmul (2005), Suphaluk Phuprasert (2005). The researcher believes that the working environment influences personnel in the workplace both in their work performances and in their personal behaviors.

Linear relationship between the supportive learning technology and learning organization was found with a significant difference at 0.01. The results agreed with the studies of Kanokorn Yosphaibul and others (2004), Boonthum Boranmul (2005). The researcher believes that technology is a sub-system of learning organization. Multi media can provide active learning for workers to become self-learners and brings about good performance.

Linear relationship between the supportive learning environment and learning organization was found with a significant difference at 0.01. These results were in line with Paweena Tubprayoon (2004) who studied

the factor and the success of learning organizations of index international group limited. She found that there were relationship between supportive learning environments and learning organization .The researcher believes that a supportive learning environment brings about the transfer of knowledge among groups, so supportive learning environment has relationship to learning organizations.

Linear relationship between supportive learning techniques and tools and learning organization was found with a significant difference at 0.01. The studies were conducted by Koson Deseelatam (2003) and Paweena Tubprayoon (2004) and found the same results .The researcher believes that supportive learning techniques and tools will help in decision making, planning, and personnel development as well as organization development to become a learning organization.

Linear relationship between knowledge management and learning organization was found with significant difference at 0.01. Boondee Boonyakit and others (2004, p.26) confirmed that learning organization needs the personnel's skills to develop, to provide, and to apply as well as to transfer of knowledge including behavioral adaptation. Moreover, knowledge management could provide learning skills as well as knowledge application. Watchara Yakoon (2003, pp. 69) mentioned that knowledge management and learning organization had a close relationship, because the concept of a

learning organization was to encourage personnel in the organization to interact various learning activities from both inside and outside the organization. Then the personnel could utilize those learning activities to improve themselves as well as organization performance.

#### **Factors forecasting learning organization of the industrial factories at the Amata Nakorn Industrial Estate.**

The multiple regression analysis between seven factors and the status of learning organization was found that the following five factors were good predictors in the following aspects: knowledge management (x7), organization culture (x2), supportive learning technology (x4), supportive learning environment (x5), and leadership style(x1). The equation reflected as follows:  $Y = 0.879 + 0.708 x 7 + 0.279 x 2 + 0.173 x 4 + 0.166 x 5 + 0.134 x 1$

The prediction power was at 75.80 percent with significant difference at 0.01. The prediction equation revealed that the learning organization of industrial factories at the Amata Nakorn had the relationships to the five factors mentioned earlier. The most important factor was knowledge management which possessed the prediction power at 65.20 percent ( $R^2 = 0.652$ ). As a result, the first priority that the managers should be concerned with is to develop the knowledge management in their factories.

The second factor was organization culture and the prediction power was at 70.60 percent.



However when two factors were presented in the equation, the prediction power was increased by 5.40%. This meant that organizational culture was an important factor to become a learning organization.

The third factor was supportive learning technology. The regression revealed 0.732 ( $R^2 = 0.732$ ) and the prediction power was at 73.20 percent.

The fourth factor was a supportive learning environment and the regression was 0.746 ( $R^2 = 0.746$ ) and the prediction power was increased by 74.60 percent.

The fifth factor in the equation was leadership styles and the regression power was 0.758 ( $R^2 = 0.758$ ) or the prediction power was increased by 75.80 percent.

## RECOMMENDATIONS

### 1. Policy Recommendations

1.1 The research found that as far as the opinion toward the level of learning organization, shared vision earned the lowest average. Thus, each factory should formulate and implement a policy to encourage personnel to develop visions, goals, objectives and strategy for more working effectiveness.

1.2 The results also showed that personal mastery gained the highest average.

The factory should promote and support training policies to encourage personnel or stimulate them to continue self development.

1.3 Finally, this study also found that a supportive learning environment was the lowest average factor. Thus, the factory should provide a supportive learning environment for personnel.

### 2. Recommendations for practice

2.1 The factory should have staff meetings to develop the companies' visions.

2.2 The factory should provide a library to encourage employee self-learning.

2.3 The factory should provide electronic media to support employees' learning activities.

2.4 The factory should have personnel to manage information technology.

2.5 The factory should provide group meetings for personnel to discuss and exchange ideas for their knowledge improvement and self-development.

### 3. Recommendations for further study.

3.1 There should be a study conducted on the level of learning organization in other industrial estates.

3.2 There should be action research or qualitative research to study learning organizations to get more data and information.

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